

FAVEPC
FS-GM704 Module
Evaluation Kit



FAVEPC FS-GM704 Module Evaluation Kit User Manual

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FAVEPC FS-GM704 Module Evaluation Kit



Initial setup

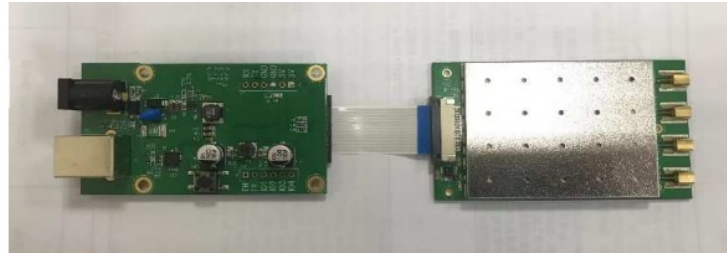
Powering the Reader

Plug the power cable in, with the indicator light on & reader is ready.

As illustrated below:

DC IN: 9~24V

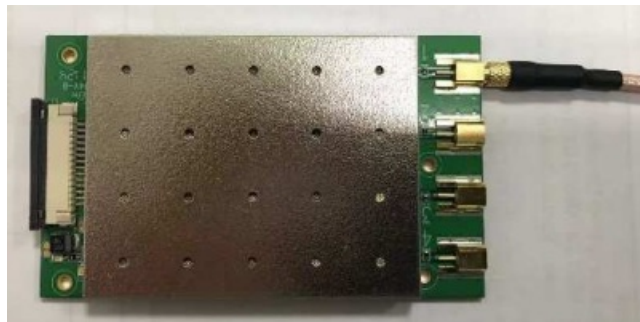
B TYPE USB



MMCX RF
connector

Connecting Antenna to Reader

Connect the antenna with the antenna MMCX port as illustrated below.



Connecting Data Line to Reader

You can connect the reader to your PC via B-type USB, as illustrated below.

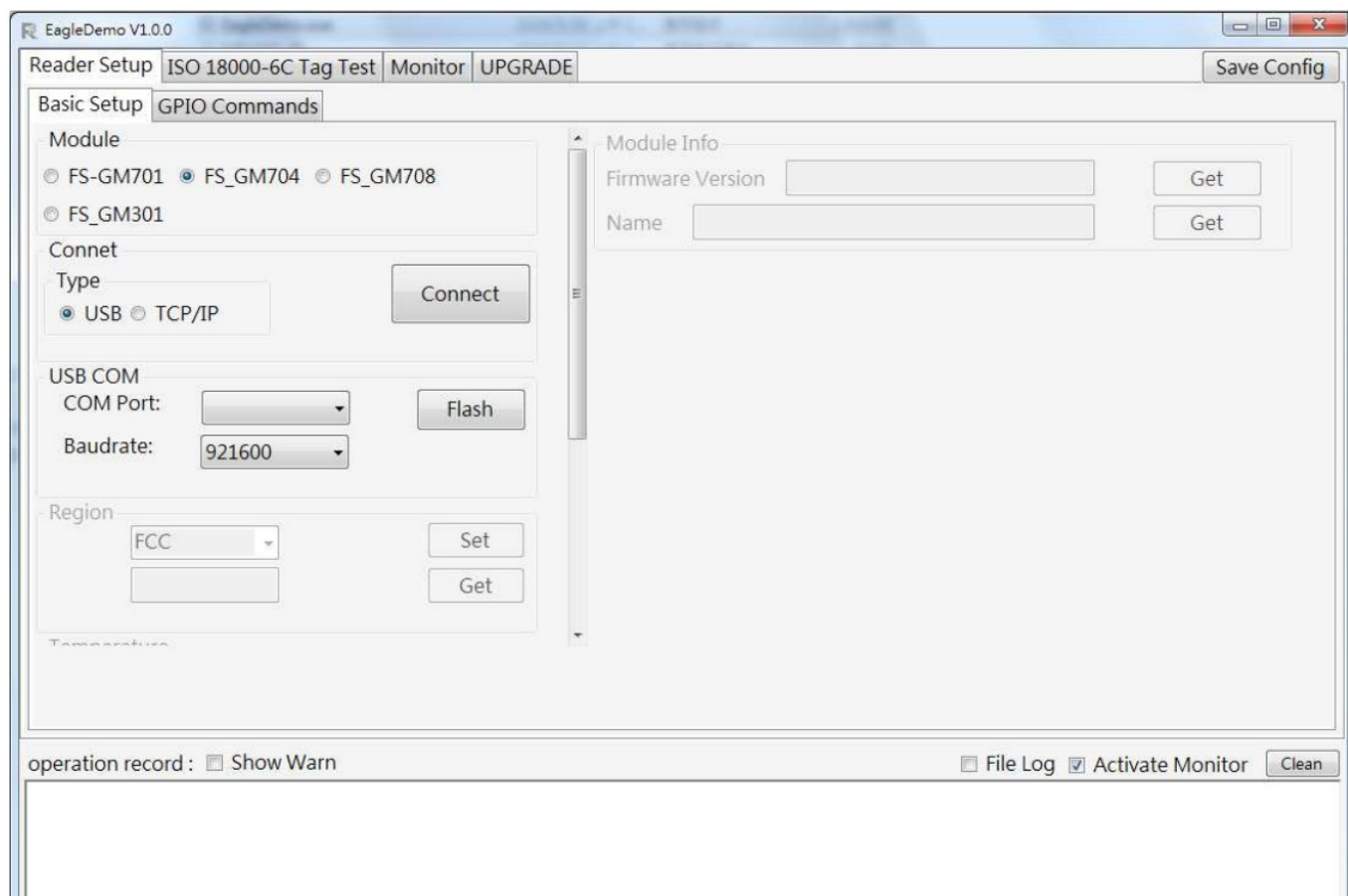


Connect DEMO SW

Double-click EagleDemo.exe to run the software.

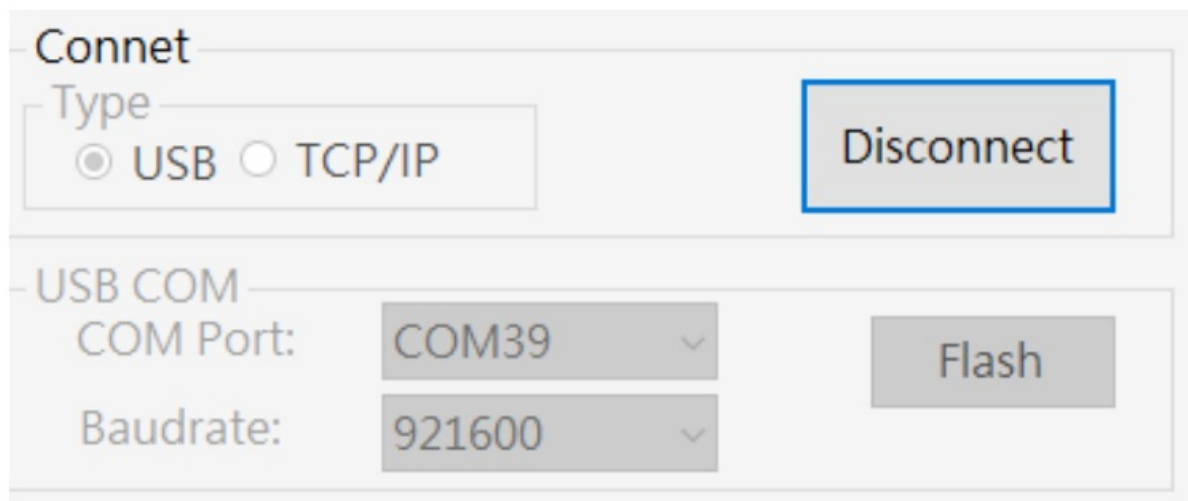
Connect

Open the software and it will show as below.

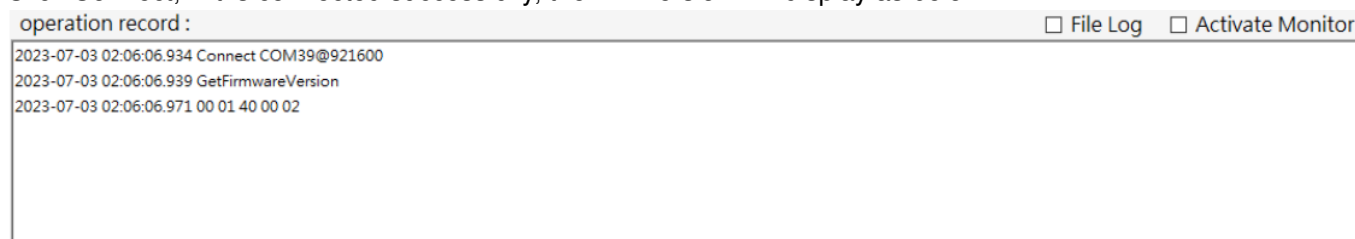


- Please select USB as the Connection, Choose the corresponding Serial Port and Baud Rate (the default baud rate is 921600).

As illustrated below:



Click Connect, if it is connected successfully, the FW version will display as below.



Text communication with the reader:

Click on Get in Firmware Version or in Reader Region, and the following screen displays.

Firmware

01400002

Read

Region

FCC

Set

Get

Run Inventory function

After connecting the reader with the PC, we can start go Inventory Run function. Please select the ISO 18000-6C tag test as illustrated below.

The screenshot shows the EagleDemo V1.0.0 software interface. The 'Reader Setup' tab is active, and the 'ISO 18000-6C Tag Test' option is selected. The 'Inventory' section is expanded, showing various settings. The 'Inventory Type' is set to 'Custom'. The 'Inventory Stop Condition' is set to 'Loop Times' with a value of 0 and 'continuous' checked. The 'Inventory Custom' section shows 'RF Mode' set to 'ULTRA FAST MODE 103'. The 'Antenna' section shows 'Antenna 1' selected. The 'Power' section shows '2800' dBm. The 'Inventory Time' section shows '1000' ms. The 'Inventory Run' section shows '50' ms. The 'Inventory parameter' section shows '0'. The 'Data' section shows 'Inventory Quantity' as 21, 'Peak Speed(Tag/s)' as 0, 'Max Speed(Tag/s)' as 267, and 'AVG Speed(Tag/s)' as 190. The 'Command Duration(ms)' is 0, and the 'Total Inventory Duration' is 00:00:01.256. The 'Result' section shows 'Total Tag Count: 239', 'Min RSSI: -62.60dBm', and 'Max RSSI: -38.73dBm'. A table of results is displayed below.

| # | Coun | PC | EPC | Freq(kHz) | Rssi(dBm) | ANT1 | Timestamp |
|----|------|-------|-------------------------------------|-----------|-----------|------|-----------|
| 1 | 8 | 30 00 | EE EE 00 00 00 00 00 00 00 00 02 | 925250 | -5301 | 8 | 620874 |
| 2 | 9 | 30 00 | EE EE 00 00 00 00 00 00 00 00 09 | 925750 | -5395 | 9 | 428920 |
| 3 | 12 | 30 00 | EE EE 00 00 00 00 00 00 00 00 0D | 926750 | -4831 | 12 | 211546 |
| 4 | 11 | 30 00 | E2 00 00 1D 97 08 00 55 23 10 1C DF | 926750 | -5175 | 11 | 175870 |
| 5 | 12 | 30 00 | 00 00 00 00 00 00 00 00 00 00 00 | 926750 | -5001 | 12 | 219103 |
| 6 | 10 | 30 00 | E2 80 69 95 00 00 50 02 FD 98 DA 3C | 926750 | -5099 | 10 | 167488 |
| 7 | 9 | 1C 00 | 53 45 00 00 07 69 | 926750 | -5457 | 9 | 169213 |
| 8 | 13 | 30 00 | EE EE 00 00 00 00 00 00 00 00 04 | 926750 | -5508 | 13 | 209209 |
| 9 | 10 | 30 00 | EE EE 00 00 00 00 00 00 00 00 0A | 926750 | -4987 | 10 | 175040 |
| 10 | 6 | 30 00 | E2 00 00 1D 97 08 01 94 23 10 AB C1 | 925750 | -5724 | 6 | 426414 |

1. Setp1: Enable ANT 1

1. Check mark the ANT1.

Antenna

☒ 1

power

3000

inventory time

1000

inventory run

0

2. Setp2: Setting RF Output Power

- RF Output Power is the strength of the RF output signal from the antenna port whose unit is dBm.

Antenna
☒ 1
 power
 3000
 inventory time
 1000
 inventory run
 0

- The output power range is 0 – 33dBm. The default RF output power is 30dBm.
- **Setp2: Setting Inventory time & Run**
- Setting Inventory time means the running time when starting the inventory command. Setting Inventory Run means running once when starting the inventory command. Inventory stops at which time or runs up to the setting value.

Antenna
☒ 1
 power
 3000
 inventory time
 1000
 inventory run
 0

- The default inventory time is 1000ms.
- The default inventory run is 0, which means “don’t care”.

3. Setp3: Setting RF-link mode

- There are different read speeds & sensitivities in different RF-link modes. For more details, please check the RF-link profile of the datasheet.

Select CFG
 RF mode: ULTRA FAST MODE 103
 default RF ULTRA FAST MODE 103
 default Inven FAST MODE 302
☒ RF_Chann FAST MODE 120
☒ TimeStam FAST MODE 323
 NORMAL MODE 345
 NORMAL MODE 223
 NORMAL MODE 222
 DRM MODE 241
 DRM MODE 244
 ULTRA Sensitivity MODE 285

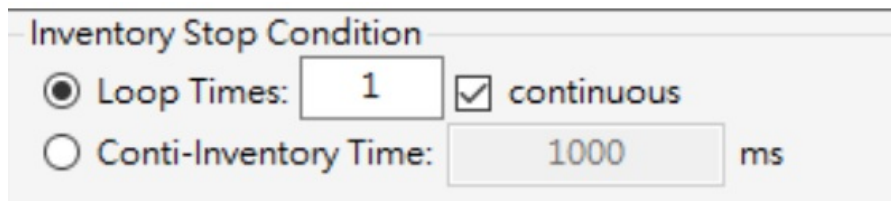
4. Setp4: Run/Stop Inventory

- Click the Inventory button to Run the Inventory function. click the Stop button to stop the Inventory function.

Parameter of AUTO Stop Inventory

| | |
|-----------------|---|
| Loop time | Inventory stops when reaches the setting of command count. |
| Conti-Inventory | Inventory stops when reaches the setting of the Inventory period. |

it will not stop if the tick continuous



Inventory Stop Condition

☒ Loop Times: ☒ continuous

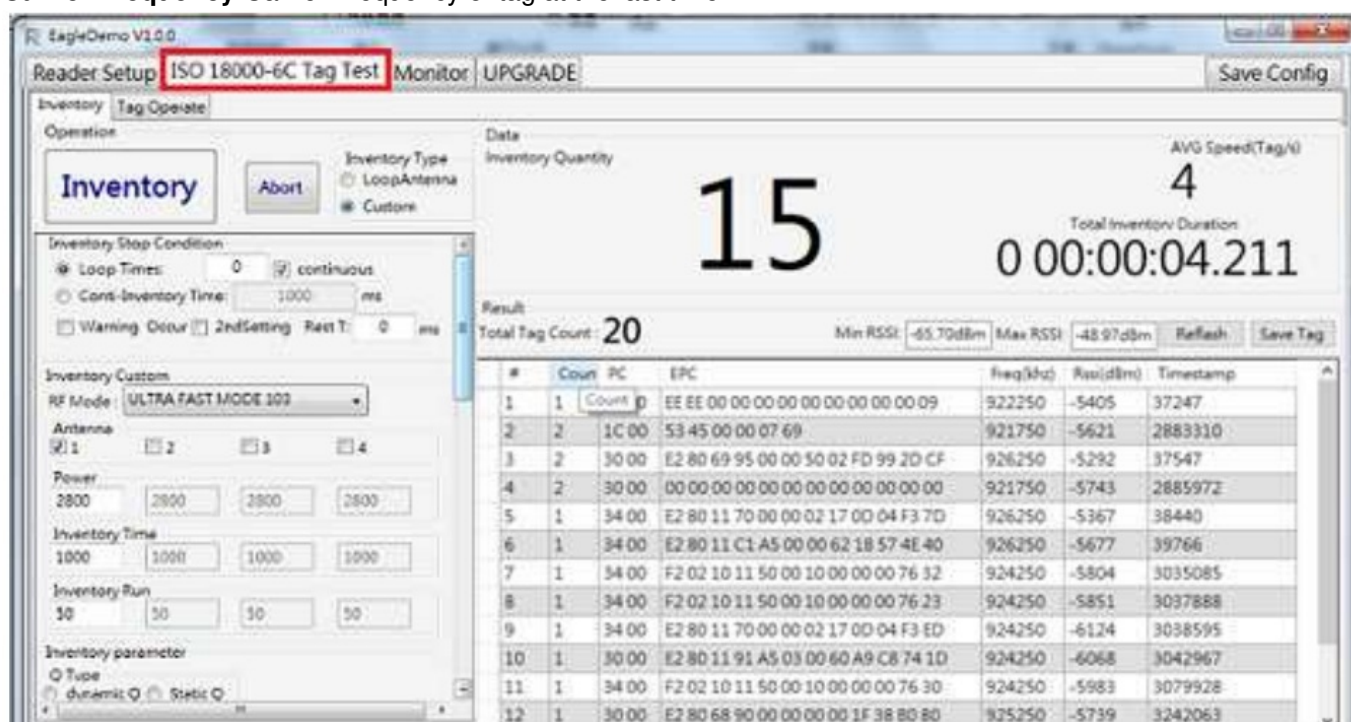
☐ Conti-Inventory Time: ms

The parameter of Running Inventory

There are 13 parameters when running inventory as shown as follows.

| | |
|--------------------------|--|
| Inventoried Quantity | Total number of inventory tags since clicking Inventory . |
| Peak Speed | Read Speed of Tag for last one inventory command, unit: Tag/s |
| Max speed | MAX Read Speed of Tag for total inventory period, unit: Tag/s |
| AVG speed | AVG Read Speed of Tag for total inventory period, unit: Tag/s |
| Command Duration | The time between Inventory Command to command, unit: ms |
| Total Inventory Duration | Total inventory period when click Inventory , unit: ms. |
| Total Tag Count | Total tags when starting the Inventory period. |
| Count | Tag count |
| EPC | EPC data of tag. |
| PC | PC data |
| CRC | CRC data |
| RSSI | The Tag signal strength at the last inventory command. |

Carrier Frequency Carrier Frequency of tag at the last time.



EagleDemo V1.0.0

Reader Setup **ISO 18000-6C Tag Test** Monitor UPGRADE Save Config

Inventory Tag Operate

Operation

Inventory Abort Inventory Type ☐ LoopAntenna ☒ Custom

Inventory Stop Condition

☒ Loop Times: ☒ continuous

☐ Conti-Inventory Time: ms

☐ Warning Occur ☐ 2ndSetting Rest T: ms

Inventory Custom

RF Mode: **ULTRA FAST MODE 102**

Antenna ☒ 1 ☐ 2 ☐ 3 ☐ 4

Power 2800

Inventory Time 1000

Inventory Run 10

Inventory parameter

☒ Type ☐ dynamic ☐ Static

Data

Inventory Quantity

15

AVG Speed(Tag/s) **4**

Total Inventory Duration **0 00:00:04.211**

Result

Total Tag Count: **20** Min RSSI: -65.70dBm Max RSSI: -48.97dBm Refresh Save Tag

| # | Count | PC | EPC | Freq(kHz) | Rssi(dBm) | Timestamp |
|----|-------|-------|-------------------------------------|-----------|-----------|-----------|
| 1 | 1 | Count | EE EE 00 00 00 00 00 00 00 00 09 | 922250 | -5405 | 37247 |
| 2 | 2 | 1C 00 | 53 45 00 00 07 69 | 921750 | -5621 | 2883310 |
| 3 | 2 | 30 00 | E2 80 69 95 00 00 50 02 FD 99 2D CF | 926250 | -5292 | 37547 |
| 4 | 2 | 30 00 | 00 00 00 00 00 00 00 00 00 00 00 | 921750 | -5743 | 2885972 |
| 5 | 1 | 34 00 | E2 80 11 70 00 00 02 17 0D 04 F3 7D | 926250 | -5367 | 38440 |
| 6 | 1 | 34 00 | E2 80 11 C1 A5 00 00 62 18 57 4E 40 | 926250 | -5677 | 39766 |
| 7 | 1 | 34 00 | F2 02 10 11 50 00 10 00 00 00 76 32 | 924250 | -5804 | 3035085 |
| 8 | 1 | 34 00 | F2 02 10 11 50 00 10 00 00 00 76 23 | 924250 | -5851 | 3037888 |
| 9 | 1 | 34 00 | E2 80 11 70 00 00 02 17 0D 04 F3 ED | 924250 | -6124 | 3038595 |
| 10 | 1 | 30 00 | E2 80 11 91 A5 03 00 60 A9 C8 74 1D | 924250 | -6068 | 3042967 |
| 11 | 1 | 34 00 | F2 02 10 11 50 00 10 00 00 00 76 30 | 924250 | -5983 | 3079928 |
| 12 | 1 | 30 00 | E2 80 68 90 00 00 00 00 1F 38 80 80 | 925250 | -5739 | 3242063 |

Error Display

ANT error:

operation record :

☐ File Log ☐ Activate Monitor

Clean

2023-09-08 01:37:17.751 Interval Count1: RFMode:103 ANT1 Set

2023-09-08 01:37:18.456 Stop

2023-09-08 01:37:24.966 Interval Count1: RFMode:103 ANT1 Set

2023-09-08 01:37:25.461 Stop

2023-09-08 01:37:28.121 Interval Count1: RFMode:103 ANT1 Set

2023-09-08 01:37:28.134 CMD 0x6D Status Error:62 01 ERR_OP_STATUS

2023-09-08 01:37:28.135 Stop

Reason:

1. ANT is Disconnection to ANT port of the module
2. VSWR is too large of ANT, it should be lower than 1.3
3. Reflection RF power is too large, please check if is there some Metal around ANT.

Receiver data time out:

Reason:

1. Software CRASH
2. Interface CRASH

Fcc Statement

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, under Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used under the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution (15.19 statement)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference,
2. this device must accept any interference received, including interference that may cause undesired operation.

Non-modification Statement:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body.

Validity of using the module certification:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Custom design antennas may be used, however, the OEM installer must follow the FCC 15.21 requirements and verify if new FCC approval will be necessary.

End product labeling:

- This transmitter module is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users.
- The final end product must be labeled in a visible area with the following: "Contains FCC ID: ZDD-FS-GM701-00".

Information that must be placed in the end user manual:

- The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product that integrates this module.
- The end user manual shall include all required regulatory information/warnings as shown in this manual.

Co-location warning:

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

OEM integration instructions:

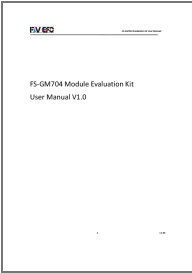
- This device is intended only for OEM integrators under the following conditions:
- The antenna must be installed such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmitter or antenna.
- The module shall be only used with the external antenna(s) that have been originally tested and certified with this module.
- For all product markets in the US, OEM has to limit the operation channels in Channel 1 to Channel 11 or 3-9 as specified above by the supplied firmware programming tool.
- OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.
- As long as the 3 conditions above are met, further transmitter tests will not be required.

- However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

Important Notes:

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product that integrates this module.
The end user manual shall include all required regulatory information/warnings as shown in this manual.

Documents / Resources

| | |
|---|---|
|  | <p>FAVEPC FS-GM704 Module Evaluation Kit [pdf] User Manual FS-GM704, FS-GM704 Module Evaluation Kit, Module Evaluation Kit, Evaluation Kit, Kit</p> |
|---|---|

References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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